

DOCUMENT RESUME

ED 239 928

SE 044 142

AUTHOR Miller, Vicki; Happel, Sue
TITLE Dinosaurs.
INSTITUTION Area Education Agency 7, Cedar Falls, IA.
PUB DATE [80]
NOTE 58p.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Art Activities; Books; Elementary Education;
*Elementary School Science; Learning Activities;
*Paleontology; Resource Materials; *Science
Activities; Worksheets
IDENTIFIERS *Dinosaurs; PF Project

ABSTRACT

Facts, activities, and student worksheets about dinosaurs are presented. General information about dinosaurs (when they lived and what they were like) and fossils (how they are created and what information they can provide) is followed by a worksheet and answer sheet. A timeline of the dinosaur age and a classification chart which divides dinosaurs into orders and suborders are included. Descriptions, facts, lists of suggested supplemental materials, and discussion questions are offered for each of the following dinosaurs: (1) tyrannosaurus rex; (2) allosaurus; (3) ornithomimus or struthiomimus; (4) brontosaurus or apatosaurus; (5) diplodocus; (6) brachiosaurus; (7) iguanodon; (8) anatosaurus or trachodon; (9) stegosaurus; (10) ankylosaurus; (11) protoceratops; (12) triceratops; (13) ichthyosaurus; (14) elasmosaurus; and (15) pteranodon. Several possible explanations for the disappearance of the dinosaurs are provided along with a worksheet. Twenty-five activities including science, art, and mathematics activities which are related to dinosaurs or which use a dinosaur theme are presented. A bibliography is included which cites nine activity books, 25 fiction books, and 58 nonfiction books on dinosaurs. This document is part of a collection of materials from the Iowa Area Education Agency 7 Teacher Center project. (DC)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED239928

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

✓ This document has been reproduced as
received from the person or organization
originating it.

Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Ronald Dickinson

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

DINOSAURS



Developed by:
Vicki Miller
Sue Happel
Intermediate Teachers
Clarksville Community Schools

Sponsored by:
AEA-7 Teacher Center
Nellie Garvey School
2201 E. Mitchell Avenue
Waterloo, Iowa 50702

SE044142



Cedar Falls, Iowa

Document title: Dinosaurs

Author(s): Sue Happel and Vicki Miller

Developed with funds provided by a federal
Teacher Center grant contract under the provisions
of the Higher Education Act of 1965.

AEA 7 Teacher Center
Waterloo, Iowa
Sept. 15, 1978 to Aug. 15, 1983

Teacher Center Policy Board Chair - Doris Mauer
Teacher Center Director - Diane Gibson, Ed. D.

Ronald Dickinson, Ed. D.- Chief Administrator, AEA 7

TABLE OF CONTENTS

	<u>Page</u>
Dinosaurs and Fossils	1
Dinosaurs and Fossil Worksheet.	3
When Dinosaurs Lived.	7
Classifications of Dinosaurs.	8
Tyrannosaurus Rex.	9
Allosaurus	11
Ornithomimus or Struthiomimus.	13
Brontosaurus or Apatosaurus.	14
Diplodocus	16
Brachiosaurus.	18
Iguanodon.	20
Anatosaurus or Trachodon	22
Stegosaurus.	24
Ankylosaurus	26
Protoceratops.	28
Triceratops.	30
Ichthyosaurus.	32
Elasmosaurus	34
Pteranodon	35
End of Dinosaurs	37
End of Dinosaurs Worksheet.	38
Dinosaur Activities	40
Bibliography.	48

DINOSAURS AND FOSSILS

Dinosaurs were the strangest creatures that ever existed on this earth. The word dinosaur means "terrible lizard". It is a good description. Dinosaurs were reptiles, cold-blooded animals related to crocodiles; snakes; and lizards. These huge reptiles ruled the earth for a very long time. About 160 million years went by from the first dinosaur that lived to the last one. This long period is called the Age of Dinosaurs.

Dinosaurs came in all shapes and sizes. Some were almost as long as a city block or stood as tall as a palm tree. Others were the size of chickens or dogs. Some walked on two legs, while others walked on all fours. Some dinosaurs ate only plants like ferns, mosses, soft bark, and palm-like leaves. Others ate only meat which was usually the flesh of other dinosaurs.

Some dinosaurs were as big as an army tent. Long horns projected forward like two machine guns. Others were slender and swift, skipping over the plains faster than a race horse. Some dinosaurs were good swimmers, and this was valuable when trying to escape a flesh-eating dinosaur that didn't know how to swim.

Dinosaurs really did exist, but how do we know this? How do we know what dinosaurs looked like, what they ate, and how long they lived? We know dinosaurs existed because we find their bones and footprints buried in the earth. The bones have been fossilized or turned to stone.

What are fossils?

Fossils are the remains of animals and plants which lived long ago and have been preserved in various ways until today. Fossil is a Latin word meaning dug up.

Fossils may be an actual part of an ancient animal or plant that was buried in such a way that it never decayed but instead hardened into rock. Or, a fossil may be the trace or print of an animal or plant. As the animal or plant was pressed down into the mud, it made a mold or cast in the mud. In time, the mud hardened into stone, leaving one type of picture of what the plant or animal was like. By knowing the age of rock layers in which fossils are found, scientists can tell how long ago the original plants or animals lived.

How do we know about dinosaurs?

When dinosaurs died, their bodies sank down into the mud or sand. As years went by, some of the dinosaurs' bones, teeth and bits of skin turned slowly to rock. Sometimes, even the dinosaur eggs turned to stone. The footprints that dinosaurs left in the mud sometimes dried up and turned to stone. By finding these remains of dinosaurs, we can tell how big they were by the size of their bones and footprints.

We can tell what a dinosaur liked to eat by the type of teeth they had. Some dinosaurs ate hard plants, while others could only eat soft plants. Some dinosaurs ate small animals and insects. There were even dinosaurs who ate other dinosaurs!

As scientists fit together and study the bones the dinosaurs left behind, they can tell how a dinosaur moved and guess as to what they looked like.

Dinosaurs & Fossil Worksheet--Enrichment Activity--will have to use additional research material

DINOSAURS & FOSSIL WORKSHEET

I. Fill in the blanks (Use the Answer Box)

1. Animals lived _____ of years ago.
2. Many of the animals were very _____.
3. Hot rocks that are melted are called _____.
4. The _____ of animals and plants in rocks are _____.
5. Sometimes a plant or animal was covered by _____.
6. Ancient reptiles are called _____.
7. Ancient seas contained _____.
8. Mud and sediment changed into _____.
9. Scientists study _____ in rocks.
10. A print tells us about an animal's or plant's _____.
11. When something is no longer _____, it is extinct.
12. Fossils also tell us how the animals _____.
13. The shells and bones of animals are _____.
14. Millions of years ago seas were where _____ land is now.
15. The study of fossils tells us about _____.

ANSWER BOX

lava	fossils	exists
large	stone	shape
millions	dry	lived
mud	sea animals	skeletons
prints	dinosaurs	nature

- II. Fossils are mineral traces of animals and plants that lived long ago on the earth. Fossil bones are formed when minerals in the surrounding soil and water take the place of the once-living animal matter. Other fossils are formed when plant or animal impressions in sand or mud turn into stone over millions of years.

Underline the correct answers.

1. Fossils are (a. actual bones b. mineral traces c. fuels).
2. Today's fossils began forming (a. last year b. around 1900 c. millions of years ago).
3. Fossils may be found (a. on mountain peaks b. on ocean floors c. in your neighborhood d. almost anywhere).
4. The oldest fossils are about (a. 600 million b. 15 thousand c. 300 years old).

III. Matching.

- | | |
|-----------------------------|---|
| ___ 1. mineral traces | a. very thin shells on some. |
| ___ 2. fossil formation | b. fossils |
| ___ 3. dinosaur egg fossils | c. begun millions of years ago |
| ___ 4. surrounding minerals | d. fossil tree formations |
| ___ 5. petrified forest | e. replacements of animal matter in bones |
| ___ 6. dinosaur footprints | f. more than 2,000 found near Rocky Hill, Connecticut |

- | | |
|---------------------------------------|--|
| ___ 1. dinosaur | a. done with pick & shovel. |
| ___ 2. dinosaur hunting | b. died about 50-million years ago |
| ___ 3. last dinosaur | c. terrible lizard |
| ___ 4. land, sea, and air | d. the story of dinosaurs |
| ___ 5. 160-million years | e. where dinosaurs lived. |
| ___ 6. footprints, eggs, fossil bones | f. length of time dinosaurs roamed the earth |

IV. True or False

1. _____ Dinosaurs ruled the earth for only a short time.
2. _____ Many deposits of dinosaur remains have not been found.
3. _____ Fossils may be found in many places all around the world.
4. _____ Dinosaur skeletons are relatively easy to dig up and assemble.
5. _____ Only trained scientists may search for fossils.
6. _____ Modern dinosaur "hunters" are called paleontologist.

V. Short answers

1. What are fossilized dinosaur remains made of?

2. Why must we dig in the ground in order to have dinosaur remains?

3. Why do we "hunt" dinosaurs?

DINOSAURS & FOSSIL WORKSHEET KEY

I. Fill in the blanks

- | | |
|---------------------|---------------|
| 1. millions | 9. fossils |
| 2. large | 10. shape |
| 3. lava | 11. exists |
| 4. prints - fossils | 12. lived |
| 5. mud | 13. skeletons |
| 6. dinosaurs | 14. dry |
| 7. sea animals | 15. nature |
| 8. stone | |

II. Underline correct answers

1. b. mineral traces
2. c. millions of years ago
3. a., b., c., d.
4. a. 600 million

III. Matching

- | | |
|------|------|
| 1. b | 1. c |
| 2. c | 2. a |
| 3. a | 3. b |
| 4. e | 4. e |
| 5. d | 5. f |
| 6. f | 6. d |

IV. True or False

- | | |
|----------|----------|
| 1. false | 4. false |
| 2. true | 5. false |
| 3. true | 6. true |

V. Short answers.

1. rock, various minerals
2. Most are buried where they were covered up millions of years ago by mud, sand, soil, or water.
3. To learn about our earth's past.

WHEN DINOSAURS LIVED

Triassic Period

Dinosaurs first appeared in this period. There were not many kinds of dinosaurs.

Jurassic Period

There were many more kinds of dinosaurs. The biggest plant-eating giants lived in this period

Cretaceous Period

There were more kinds of dinosaurs than ever before. The biggest, fiercest meat-eaters lived in this period.

The Mesozoic Era

Triassic Period

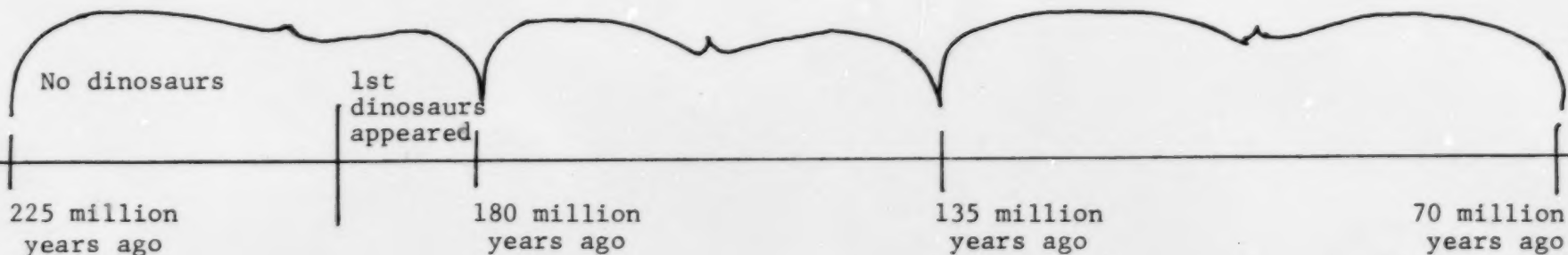
45 million years long

Jurassic Period

45 million years long

Cretaceous Period

65 million years long



CLASSIFICATIONS OF DINOSAURS

Lizard-Hipped Dinosaurs: Order Saurischia

The Meat Eaters: Suborder Theropoda

Allosaurus
Tyrannosaurus Rex
Compsognathus
Struthiomimus
Ornitholestes
Ornithomimus

Reptilian Giants: Suborder Sauropoda

Brontosaurus
Diplodocus
Brachiosaurus

Bird-Hipped Dinosaurs: Order Ornithischia

Bird-Footed Dinosaurs: Suborder Ornithopoda

Iguanodon
Anatosaurus
Trachodon
Corythosaurus
Hadrosaurus

Plated Dinosaurs: Suborder Stegosauria

Stegosaurus

Armored Dinosaurs: Suborder Ankylosauria

Paleoscincus
Ankylosaurus

Horned Dinosaurs: Suborder Ceratopsia

Protoceratops
Monoclonius
Triceratops
Styracosaurus

Reptiles that looked like fish: The Ichthyosaurs

Ichthyosaurus

Sea Serpents: The Plesiosaurs

Elasmosaurus

Terrors of the Sea: The Monsasaurs

Tylosaurus

Winged Lizards: The Pterosaurs

Pteranodon
Rhamphorhynchus

Name: Tyrannosaurus Rex
Nickname: King of the Tyrant Lizards
Where It Lived: Forests and Open Plains of
 North America and East Asia
What It Looked
Like: 19 to 20 feet high
 40 to 50 feet long
 8 to 10 tons



Interesting Facts:

The tyrannosaurus is believed to have been the largest carnivorous, which means meat eating, dinosaur to ever have walked the earth. This gigantic animal lived about 70 million years ago during the Cretaceous Period. It belongs to the family of dinosaurs called deinodonts, which means "terrible teeth". The tyrannosaurus had several rows of six to eight inch curving, dagger-like teeth, and could open its mouth a full four feet wide. Even though their skull was huge, the size and shape left little room for much of a brain.

Like all the big meat eaters, the tyrannosaurus was bipedal, which means it walked on its two hind legs. Its front legs were small and weak with feeble clawed fingers that couldn't have been much help in either fighting or tearing off chunks of meat. They weren't even long enough to reach his mouth. The hind legs and feet were extremely powerful, with toes ending in six to eight-inch long curved claws like an eagle's talons. The tail was used mainly for balance.

The tyrannosaurus hunted the large plant eating dinosaurs, such as the duckbills, as well as the smaller ostrich-like ornithomimus. Even though the ornithomimus was very quick, the tyrannosaurus had little trouble catching such swift prey because of his powerful legs and longer stride. The large, clumsy plant eaters could only hope to reach refuge in a large body of water if they weren't to become a meal for a tyrannosaurus. For this reason, many of them lived near water.

After gorging itself, the tyrannosaurus would lie down in a sheltered place and fall into a death-like sleep for several days, or even a week. When its stomach was empty, it would hunt again. His life was one of simply killing, eating, and sleeping.

The tyrannosaurus laid eggs which hatched by themselves in the warm climate. The young were basically on their own and grew fairly rapidly. Many tyrannosaurus lived one hundred years.

The reign of these gigantic creatures ended about 60 million years ago. The climate began to get colder with the coming of the Ice Age. When the air is cold, reptiles cool off and can't move around much. Therefore, they can't get food, and they die. No one knows for sure how the great reptiles died out, but the cold certainly helped to kill them.

Supplemental Materials:

ESP Dinosaur Era #S-21, 1979, pg. 24, "Giant Meat Eater"
ESP Jumbo Reading Series JYR-4, 1978, pg. 96 "Tyrannosaurus Rex"

Education Center:

Study Skills With Stacy Stegosaurus, 1978, pg. 36,
"Dinosaur Reading Rate"

The Learning Works: Dinosaur Detective, pg. 22
Tyrannosaurus

Frank Schaffer: Dinosaurs, 1976, pg. 2, "Giant Meat Eaters" & pg. 15 Tyrannosaurus Rex

Discussion Questions:

1. What is the nickname of the tyrannosaurs?
2. Where did the tyrannosaurus live?
3. What does "carnivorous" mean?
4. Describe a tyrannosaurus.
5. What does "bipedal" mean?
6. Why were its front legs of little use to the tyrannosaurus?
7. What was the main purpose of the tyrannosaurus' tail?
8. What did the tyrannosaurus eat?
9. What did the tyrannosaurus do after eating?
10. How old did many tyrannosaurus live to be?

Name: Allosaurus
Nickname: Leaping Lizard
Where It Lived: Plains and forests near inland lakes
What It Ate: Flesh
What It Looked Like: 35 feet long, 10 to 15 feet high,
 2 tons or more

Interesting Facts:

The allosaurus was a bipedal carnivore, (a meat eater that walked on its two hind legs) that lived 125-150 million years ago during the Jurassic Period. Although smaller than the later tyrannosaurus, he resembled him in appearance and was no less violent and no less able to prey on and devour the huge plant eaters of his day. He, too, was lizard-hipped.

Allosaurus gets its name from two words which mean "other lizard". It is so named because the structure of its backbone is totally different from any other dinosaur.

The allosaurus could leap and strike with great quickness. The heavy tail balanced his body like a kangaroo because the front legs were very small and he seldom came down on all fours. His hands ended in great hooked claws which helped him hold his prey and tear flesh from bones. The tyrannosaurus was probably his favorite food. Unlike the tyrannosaurus, his forelimbs could reach his mouth. His three-toed hind feet had even larger claws. They resembled the feet of a giant bird. The allosaurus had a huge head and his jaws, which could open three feet wide, contained three-inch long dagger-like teeth curving backwards in the direction of his throat. They were a great help in killing prey and stripping the flesh from bones, which was swallowed whole. One of the reasons we know so much about the allosaurus's eating habits is that many of his broken teeth, or at least their imprints have been found in the skeletons of other dinosaurs.

Supplemental Materials:

ESP Dinosaur Era #S21, 1979, p. 6, "Flesh-Eating Dinosaur"

The Learning Works: Dinosaur Detective, 1979, pg. 8-9, "Allosaurus"

Discussion Questions:

1. Describe the allosaurus.
2. When and where did the allosaurus live?
3. What did it eat?
4. What was its nickname?
5. How was the allosaurus like the tyrannosaurus?
6. How was the allosaurus different from the tyrannosaurus?
7. What was probably the favorite food of the allosaurus?
8. How do we know so much about the eating habits of the allosaurus?

Name: Ornithomimus or Struthiomimus
Nickname: Bird or Ostrich Mimic
Where It Was Found: North America
Where It Lived: Forests
What It Ate: Insects, eggs, seeds, fruits & green plants
What It Looked Like: 6 to 13 feet tall
Interesting Facts:

This lizard-hipped Theropod lived during the late Jurassic and Cretaceous periods in the forests of what is now Northern Canada. It received its nickname, "ostrich mimic" because of its strong resemblance to our modern-day ostrich. Its skeleton was made up of light, thin bones with a small lightly built skull, flattened into beaklike jaws. The legs were strong, slender, and birdlike, as was the neck. Unlike the ostrich, however, it had no feathers, and it had a long thin tail which it used for balance. Instead of wings, it had long-fingered, strong-clawed hands.

The ornithomimus' horny beak contained no teeth, which seems odd because the rest of the Theropods were meat eaters. However, it really didn't need teeth to eat eggs, insects, seeds, and soft green plants. Because it ate both plants and animals, the ornithomimus is said to have been omnivorous.

The ornithomimus was basically a harmless creature itself, but because of its size, it was preyed upon by the larger meat eaters. What it lacked in size and strength was made up for in speed and agility, and its quickness was its only defense against predators.

Supplemental Materials:

ESP: Dinosaur Era #S-21, 1979, pg. 17 "Struthiomimus"

Discussion Questions:

1. When and where did ornithomimus live?
2. How was it like an ostrich?
3. How was it different?
4. What does omnivorous mean?
5. What means of defense did the ornithomimus have?

<u>Name:</u>	Brontosaurus or Apatosaurus
<u>Nickname:</u>	Thunder Lizard
<u>Where It Was Found:</u>	North America
<u>Where It Lived:</u>	Swamps or forested plains
<u>What It Ate:</u>	Water plants or leaves
<u>What It Looked Like:</u>	70 to 80 feet long 25 to 35 tons



Interesting Facts:

The brontosaurus is one of the best known dinosaurs. It probably got its nickname because scientists thought it must have sounded like thunder when it walked. This harmless, gentle giant was herbivorous, which means it was a plant eater. It belongs to the sauropod family, which were the largest animals to ever live on land. They first appeared during the late Jurassic Period.

Some scientists think the brontosaurus were water dwellers to support their heavy bodies, and ate water plants like sphagnum moss. More recently, they are believed to have lived on land, supported by their straightened limbs like elephants. Their giraffe-like necks allowed them to reach tree-top leaves and tender young shoots. They may have moved in herds, keeping the young in the middle for safety.

The brontosaurus had a long neck and tail, jutting from a barrel-shaped body. It is said to have been quadrupedal because it walked on all four legs. Its legs were much larger than an elephant's with its hind legs being longer and stronger than the front. The broad, padded feet were as much as twenty-six inches wide and clawed. One massive, sharp, curved claw was on each forefoot and each hind foot had three claws. These may have been used to dig up plants from the bottoms of streams and marshes.

The brontosaurus had a tiny skull, and its small brain seems to indicate that it was not a "thinking" animal, but lived by instinct, knowing only to eat; sleep; lay eggs; and escape enemies. A second brain, which was really just a huge cluster of nerves, was located on its back just above the hind legs, and helped in moving its huge body.

Small, spoon-shaped teeth were located in the front of the brontosaurus' small mouth. They were probably used like a rake to scoop up leaves, plants, and grass. The brontosaurus

was able to breathe under water because its nostrils were located on top of its head. Its only means of protection was to wade into deep water or use its long tail like a giant whip.

Some scientists believe these gentle giants may have lived to be 1,000 years old. Others believe figures between two and three hundred years are more accurate. Still others believe their life span was less than one hundred years.

Supplemental Materials:

The Learning Works: Dinosaur Detective, 1979, pg. 4-5
"Brontosaurus"

ESP: Dinosaur Era #S-21, 1979, pg. 9 "Thunder Lizard"

Frank Shaffer: Dinosaurs, 1976, pg. 29, "Complete Sentences"

Discussion Questions:

1. Where did the brontosaurus live? (2)
2. What did the brontosaurus eat?
3. Describe the brontosaurus.
4. How did the brontosaurus get its nickname?
5. What does herbivorous mean?
6. What do we mean when we say that the brontosaurus was not a thinking animal, but lived by instinct?
7. What does quadripedal mean?
8. What means of protection did the brontosaurus have?
9. Where was the brontosaurus' second brain and what was its purpose?
10. How long might the brontosaurus have lived?

Name: Diplodocus
Nickname: "Double Beam"
Where It Was Found: Western North America--Colorado, Utah, Wyoming
Where It Lived: Near water
What It Ate: Plants
What It Looked Like: 90 feet long, 25 tons, very long neck and tail
Interesting Facts:

The diplodocus is another of the giant sauropods. It looked much like the brontosaurus, but was more streamlined and not nearly as heavy. It is believed to have been the longest dinosaur. This lizard-hipped plant eater lived during the Jurassic Period.

There are two theories about the diplodocus' name which means "double beam." One is that scientists so named it because it reminded them of a scale with balancing beams. Its long neck just about balanced its long tail. The other claim is that the name, which is from Greek words for "double" and "beam" refers to two projections located on the vertebrae of the animal.

As was dinosaur fashion, the diplodocus' front legs were shorter than the back. It had broad pads on its feet like an elephants. Some of its toes were clawed, which probably kept it from sliding in the mud. The tiny mouth was equipped with small blunt teeth which tipped outward. Again scientists' opinions are changing concerning the eating habits of these giants. Once thought to stay constantly near water, eating only soft-water plants, now scientists feel the diplodocus probably also grazed at tree-top level.

The allosaurus was probably the greatest enemy of the diplodocus. Its only weapons against attack were its long, whip-like tail or heading for deep water. The nostrils opened to a single hole near the eyes which were set very high in the small head. It could hide under water without drowning and still see what was happening, too.

The diplodocus had one of the smallest brains and is believed to have been the dumbest dinosaur. It had knots of nerve cells along its spinal cord called ganglia, which controlled its legs and tail because the brain was too small to control its entire body.

Supplemental Materials:

The Learning Works: Dinosaur Detective, 1979, pg. 24-25
"Diplodocus"

Frank Shaffer: Dinosaurs, 1976, p. 18, "Giant Plant
Eaters"

ESP: Dinosaur Era #S-21, 1979, p. 11 "The Longest Lizard"

Education Center: Study Skills With Stacy Stegosaurus,
1979 p. 29, "Dinosaur Summary"

Discussion Questions:

1. When and where did the diplodocus live?
2. Describe the diplodocus.
3. What is the diplodocus' nickname and how did it get such a name? (2 theories)
4. What was the diplodocus' greatest enemy?
5. What means of protection did the diplodocus have?
6. What are ganglia, and why did the diplodocus have them?

Name: Brachiosaurus
Nickname: Arm Lizard
Where It Was Found: North America, Europe, Asia, Africa
Where It Lived: In or near lakes and swamps
What It Ate: Plants
What It Looked Like: 40 feet tall, 80 feet long, 50 tons, small head on long neck, long tail.

Interesting Facts:

The brachiosaurus was a lizard-hipped sauropod that lived about 130 million years ago during the late Jurassic and early Cretaceous Periods. The species survived for about 100 million years. It is believed to have been the heaviest animal to ever have walked the earth. Brachiosaurus means "arm lizard." The animal was so named because it did not follow the usual dinosaur pattern of having front legs shorter than hind legs. Its front legs were longer causing it to lope along like a giraffe.

Like the brontosaurus and diplodocus, the brachiosaurus has often been called an amphibious dinosaur. Scientists think they spent much of the time in water to help hold up their tremendous weight. However, they are beginning to have second thoughts about the brachiosaurus walking along lake and swamp bottoms feeding on water plants while breathing through the nostrils located in the crest on top of their heads like a snorkel. Some scientists believe their lungs wouldn't have worked under twenty feet of water. They think it must have grazed on tree tops instead.

The brachiosaurus was slow moving. It had legs the size of tree trunks, which were necessary to support its great weight. The thick, heavy tail barely touched the ground. It spent most of its time eating because its huge body required tremendous amounts of food. Its teeth were rather weak and suitable only for soft plant food.

Only the head of the brachiosaurus was not extremely large. In proportion to its size, the brain was the smallest of any known animal. This, of course, made the brachiosaurus very slow-witted. Its tiny brain was barely able to keep the tremendous body in operation.

In spite of its size, the brachiosaurus was harmless. Its biggest enemy was the allosaurus, and its only means of protection was to escape into deep water where the non-swimming meat eater would not follow.

Supplemental Materials:

Frank Shaffer: Dinosaurs, 1976, pg. 9 "Brachiosaurus"

The Learning Works: Dinosaur Detective, 1979, pp. 18-19,
"Brachiosaurus"

ESP: Dinosaur Era, 1979, p. 8, "Dinosaur Giant"

Education Center: Study Skills With Stacy Stegosaurus,
1979, p. 31, "Out With The Outline"

Discussion Question:

1. When and where did the brachiosaurus live?
2. What did it eat?
3. How did it get its nickname?
4. Describe the brachiosaurus.
5. Why is the brachiosaurus sometimes called an amphibious dinosaur?
6. Why are scientists changing their minds about how the brachiosaurus ate?
7. What was the brachiosaurus' biggest enemy?
8. What was the brachiosaurus only means of protection?

<u>Name:</u>	Iguanodon
<u>Nickname:</u>	Toothed Lizard
<u>Where It Was Found:</u>	All over the world
<u>Where It Lived:</u>	Plains, forests
<u>What It Ate:</u>	Plants
<u>What It Looked Like:</u>	15 to 18 feet tall 15 to 35 feet long 7 tons



Interesting Facts:

Although it was not the first dinosaur to have lived, the iguanodon was the first to be described scientifically. This bird-hipped herbivore lived about 100 million years ago during the Cretaceous Period. The first fossils were discovered in England in 1822 by the wife of a Doctor Gideon Mantell. Since then fossils have been found all over the world, even in Arctic regions. Mantell was the first to seriously study dinosaurs and gave the iguanodon its name because its teeth resembled those of the iguana lizard. A model of the iguanodon was built in London and in 1854 a group of scientists had a dinner party inside it. Later it was found that the model looked nothing at all like an iguanodon.

This dinosaur spent most of its time on its strong hind legs. The feet had three large toes and one smaller one to help give it a strong grip on the ground. It was a swift runner and a good swimmer. The forelimbs were small with five digits on each hand. The thumb was large and spikelike. It was probably used for defense. The body of the iguanodon looked rather squat with a short, bulky neck. Its heavy tail was short and tapering. The skull of the iguanodon was long and high and extended into a beak in front. It had a large number of flat-notched teeth along the sides of its jaws but was toothless in front. Some scientists think its giraffe-like tongue was used to nibble tree tops. It actually resembled its chief enemy, the tyrannosaurus, but was slightly smaller. Some descendants of the iguanodon were the duck-bills.

Supplemental Materials:

The Learning Works: Dinosaur Detective, 1979, pp. 16-17, "Iguanodon"

ESP: Dinosaur Era #S-21, 1979, pg. 18, "First Dinosaur"

Discussion Questions:

1. When and where did the iguanodon live?
2. Describe the iguanodon.
3. Who named the iguanodon and why was it so named?
4. What means of defense did the iguanodon have?
5. What other dinosaurs did the iguanodon resemble?

<u>Name:</u>	Anatosaurs or Trachodon
<u>Nickname:</u>	Duck Lizard
<u>Where It Was Found:</u>	North America
<u>Where It Lived:</u>	Near bodies of water
<u>What It Ate:</u>	Plants, fresh-water clams
<u>What It Looked Like:</u>	30 to 40 feet long 16 to 18 feet high duck-billed 6 to 8 tons



Interesting Facts:

Trachodon is the older name for the dinosaur scientists now call anatosaurus. The name comes from the Greek words for "duck lizard". It lived 80 to 90 million years ago during the Cretaceous Period. More skeletons have been found of this dinosaur than any other, so it seems likely that a tremendous number of them must have once walked the earth.

On land this bird-hipped dinosaur was slow moving, but it is believed to have been the fastest swimming dinosaur. Its body was shaped like a kangaroo's, and it walked on strong three-toed feet that had hooves instead of claws. The four-fingered forelimbs were shorter than the hind legs, and their structure suggests that the animal occasionally walked on all fours. There were hooves on three of the fingers and no claw or hoof on the smaller fourth. Between the fingers, and possibly the toes, were webs of skin which were very helpful when swimming. The thick, powerful tail was used to propel the animal through the water when swimming and for balance on land.

Because its only protection was its ability to swim, it seldom ventured far from water except to lay eggs. It spent most of its time in marshes and sluggish streams eating water plants, bulbs and tubers from the banks, or occasionally fresh-water clams.

The mouth of the anatosaurus was shaped like a flat beak covered by a bony sheath, hence its name. Like many plant-eaters, it had no teeth in the front of its mouth but had four rows, one on top the other, with up to 500 in each row on the sides of its jaws. Of course, these teeth were not all used at once, but held in reserve so when the surface teeth became worn, they were replaced by the reserve teeth behind them. The teeth were very rough for grinding the coarse vegetation consumed by the anatosaurus.

Although we can only guess as to the skin coverings of most other dinosaurs, we are quite familiar with the anatosaurus' skin because of fossilized mummies which have been found. We know that although it was quite thin, it was leathery and roughly pebbled like a golf ball. It had a thin frill of skin running along the middle of its back from head to toe, and was darker on the back and lighter colored underneath.

Supplemental Materials:

Frank Shaffer: Dinosaurs, 1976, p. 27, "Nouns"

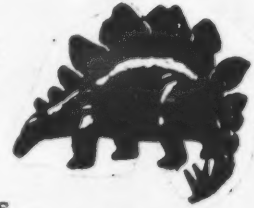
ESP: Dinosaur Era #S-21, 1979, p. 14, "The Duckbill"

The Learning Works: Dinosaur Detective, 1979, pp. 12-13, "Trachodon"

Discussion Questions:

1. When and where did the anatosaurus live?
2. Describe the anatosaurus.
3. What did it eat?
4. What does "anatosaurus" mean?
5. Why were the anatosaurus teeth unusual?
6. How do we know about the anatosaurus' skin?

<u>Name:</u>	Stegosaurus
<u>Nickname:</u>	Armored Dinosaur or Covered Lizard
<u>Where It Was Found:</u>	North America and Europe
<u>Where It Lived:</u>	Forests and open plains
<u>What It Ate:</u>	Plants
<u>What It Looked Like:</u>	18 to 25 feet long 9 feet high, 7 to 10 tons bony plates down the back and sharp spikes on the end of its tail.



Interesting Facts:

The stegosaurus was a slow-moving quadrupedal herbivore, (a plant eater that walked on four legs). It is one of the bird-hipped dinosaurs. It is recognized by the double row of triangular bony spikes alternating down its back. With tips pointing upward, they measured two inches thick and up to two feet tall. These plates were filled with blood vessels, and scientists believe they were used to heat up and cool down in a hurry. They may also have served as protection against attack from above by meat eaters.

The body of the stegosaurus was flattened from the unprotected sides and supported by four stocky legs with broad, rounded feet. The front feet had five toes and the hind feet had three. Its front legs were considerably shorter than its long hind legs, producing a strongly arched back. The neck was so short that it could barely raise its small head off the ground. It had teeth only in the back of its mouth. Some sources claim they were very strong. Others say they were quite weak. The hindquarters were as much as nine feet in the air.

The narrow pointed head held a brain the size of a walnut. The stegosaurus did not do any real thinking. A mass of nerve cells twenty times larger than the brain itself was located between the hips and controlled the back legs and tail. Because of this, the stegosaurus is sometimes said to have two brains.

Although rather frightening in appearance, it is believed to have been harmless unless provoked. Then, it would use its tail with its two pair of two to three feet long spikes like a war club. Its main enemy was the allosaurus. The stegosaurus lived about 150 million years ago in the Jurassic Period and was the first big group of dinosaurs to disappear.

Supplemental Materials:

The Learning Works: Dinosaur Detective, 1979, pp. 6-6
"Stegosaurus"

Education Center: Study Skills With Stacy Stegosaurus
p. 34 "Dinosaur Memory"

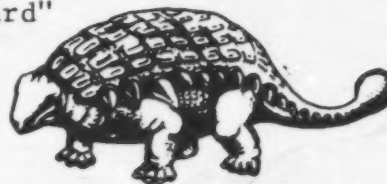
ESP: Dinosaur Era #21, 1979, p. 13, "Plate-Back
Dinosaur"

Frank Shaffer: Dinosaurs, 1976, p. 19, "Stegosaurus"

Discussion Questions:

1. Describe the stegosaurus.
2. When and where did it live?
3. Give two purposes for its plates.
4. Why is it sometimes said that the stegosaurus had two brains.

<u>Name:</u>	Ankylosaurus
<u>Nickname:</u>	Walking Fortress or "Armored Lizard"
<u>Where It Was Found:</u>	North America
<u>Where It Lived:</u>	Plains
<u>What It Ate:</u>	Plants
<u>What It Looked Like:</u>	17 to 20 feet long, 4 feet high, body covered with bony shields and spikes.



Interesting Facts:

The ankylosaurus was an armored dinosaur that lived about 70 to 190 million years ago during the Cretaceous Period. It was a bird-hipped herbivore (plant eater). The name, which literally means "curved lizard" refers to the strongly curved ribs of this creature. This dinosaur is often referred to as a walking fortress because it was so well built for defense. Its broad, squat body was protected by a shield of heavy bony plates. The bony plates of the armor were fused with bones of the skeleton. Along its edges, the shield had bony spikes extending outward, but the lower sides were unprotected. The short, broad skull was also protected by a bony armor-plate.

The ankylosaur's body was supported by four, short, heavy legs with elephant-like feet. It was slow moving with its head carried very close to the ground so it did not have a wide range of vision. Its heavy armor served it well, because the giant meat eaters could not bite through the protective covering and generally left it alone.

Its tail was the ankylosaurus' only combat weapon. Its teeth were weak and only good for eating plants. Like those of the stegosaurus, they were all in the back of the jaws and not good for biting. Its tail, however, must have often helped the ankylosaurus fight off enemies. It was long and protected by rings of bone ending in a great lump of solid bone. One swing could break an enemy's leg. The ankylosaurus was considered fearless.

Supplemental Materials:

Frank Shaffer: Dinosaurs, 1976, p. 12, "Ankylosaurus"

ESP: Dinosaur Era #S-21, 1979, p. 15 "Armored Dinosaur"

Discussion Questions:

1. When and where did the ankylosaurus live?
2. Describe the ankylosaurus.
3. What does "ankylosaurus" mean?
4. Why was its armor so important to the ankylosaurus?
5. Why was the ankylosaurus' tail such a good weapon?

<u>Name;</u>	Protoceratops
<u>Where It Was Found:</u>	East Asia
<u>Where It Lived:</u>	Sandy regions such as the Gobi Desert of Mongolia
<u>What It Ate:</u>	Plants
<u>What It Looked Like:</u>	5 to 9 feet long, 400 pounds, parrot-like beak, and bony neck frill
<u>Interesting Facts:</u>	



The protoceratops was a bird-hipped dinosaur that lived about 70 million years ago in the Cretaceous Period. It was the first of the ceratopsians, or horned dinosaurs to appear. Actually, it had no horn, and its name means "before the horn" or "first horn face". It had a hump near the end of its parrot-like beak which was the beginning of a nasal horn. In addition to teeth in the backs of its jaws, this plant eater had four tiny ones in the front.

The large head of the protoceratops was covered with a hard, shell-like surface, appearing to flap backwards. Like the other ceratopsians, the back of the skull was frilled outward to form a bony collar that protected the neck and shoulders. Newborn did not have this neck frill. The protoceratops walked on four squatty, bowed legs. It had rather broad feet and its hind legs were longer than its forelegs.

The protoceratops is one of the most completely known dinosaurs because it has left an excellent fossil record in the form of skeletons from unborn babies in eggs to adults. The eggs of this animal were the first dinosaur eggs to be discovered. The full name of this dinosaur is Protoceratops Andrews. The second half of the name is in honor of Dr. Roy Chapman Andrews, who led the expedition that discovered the first eggs in the Gobi Desert in 1922.

The eggs of the protoceratops were laid in clusters, or clutches, of thirty to thirty-five eggs in shallow nests in the sand. They were covered with a thick layer of sand and left for the heat of the sun to hatch. However, it is believed that the female stayed nearby to guard her nest. The eggs were about the size of a large potato, and the shape and texture was like our present-day turtle eggs.

Protoceratops were in a way, the beginning of the end for the dinosaurs. It was the first of the horned dinosaurs, the last dinosaur group to appear.

Supplemental Materials:

Frank Shaffer: Dinosaurs, 1976, p. 10 "Protoceratops"

The Learning Works: Dinosaur Detective, 1979, pp. 10-11
"Protoceratops"

Discussion Questions:

1. When and where did the protoceratops live?
2. Describe the protoceratops.
3. What are ceratopsians?
4. Why can we say the protoceratops is one of the most completely known dinosaurs?
5. What was the purpose of the neck frill?
6. How were protoceratops' eggs hatched?
7. Explain the meaning of the full name, Protoceratops Andrews.
8. Why do we say the protoceratops was the beginning of the end for the dinosaurs?

<u>Name:</u>	Triceratops	
<u>Nickname:</u>	Three-horned Face	
<u>Where It Was Found:</u>	North America (Colorado, Wyoming, and Montana) and Asia	
<u>Where It Lived:</u>	Forests, open plains, along marshes of the great inland seas east of the Rocky Mountains.	
<u>What It Looked Like:</u>	20 to 30 feet long; 10 to 12 tons; protective frill of bone around the neck with a horn above each eye and at the end of its nose.	

Interesting Facts:

The triceratops is the best known of the horned dinosaurs. It belonged to the group, Ceratopsia, along with Protoceratops. All members of this group were plant-eating land dwellers. It is believed they roamed in great herds like buffalo. The triceratops appeared near the end of the Cretaceous Period, about 70 million years ago. No one knows where it came from and when it disappeared. The days of the dinosaur were over.

The triceratops gets its name from the three-foot horn on its nose and the six-foot horns above each eye. A bony crest flared over its neck and shoulders from the back of its head. This collar gave good neck protection to the area which meat eaters usually attacked. It had a powerful, parrot-like beak with a single row of teeth at the back of both jaws. A thick guard of bone overhung each eye.

The huge skull made up nearly one-third of the triceratops body, which has often been compared to an army tank. Triceratops were bird-hipped dinosaurs, meaning their hind legs were longer than the front. The hind feet had four stubby toes with hooves. The front feet had five toes, two smaller ones on the outside and three with hooves in the middle.

The tyrannosaurus was probably the greatest enemy of the triceratops, but the triceratops was very much a battler and no easy target. It stood its ground and fought fiercely when challenged, and is believed to have charged when provoked. Scientists believe that even the tyrannosaurus would not attack the triceratops unless it was desperate. The sharp horns, powered in upward thrusts by huge neck muscles and strong leg muscles, could easily rip open the sides or belly of a charging enemy. However, all of the triceratops protection was at its front, so if it was attacked by more than one meat eater, it had little chance of survival. Many broken triceratops' horns have been found. These were probably broken in fights between triceratops over mates or living territory.

Supplemental Materials:

ESP: Dinosaur Era #S-21, 1979, p. 22 "Horned Dinosaurs"

The Learning Works: Dinosaur Detective, 1979, p. 26,
"Triceratops"

Frank Shaffer, Dinosaurs, 1976, p. 26, "Verbs"

Discussion Questions:

1. What is the nickname of the triceratops?
2. Where did it live?
3. What did it eat?
4. Describe a triceratops.
5. How long ago did the triceratops live?
6. What does "bird-hipped" mean?
7. What was the triceratops greatest enemy?
8. Why do scientists believe triceratops were rarely attacked by the giant meat eaters.



Name: Ichthyosaurus
Nickname: Fish Lizard
Where It Was Found: All over the world
Where It Lived: In the seas and oceans
What It Ate: Fish and other marine life
What It Looked Like: 7 to 40 feet long, fish-like
Interesting Facts:



The ichthyosaurus appeared during the mid-Triassic Period and successfully inhabited the seas all over the world. They probably swam in schools like dolphins. There is evidence that they once lived on land, but for some unknown reason they began spending more time in the water so their bodies adapted to that way of life. The name "ichthyosaur" means fish lizard. They were the most highly specialized of the marine reptiles and did indeed closely resemble a large fish. The legs and feet were shortened to flat, rounded paddles shaped like fish fins. A high, boneless back fin like a shark's kept them from rolling from side to side as they swam. The two-lobed fish-like tail was an excellent propeller for these fast swimmers.

The ichthyosaurus had a streamlined body with a sharp, pointed head. It had no neck. The average length was fifteen feet, although skeletons up to forty feet have been found. Because it was a reptile, the ichthyosaurs could not breathe under water and had to surface for air. Its nostrils were located well back on top of its skull so it did not have to come far out of the water to breathe. It had a mouth full of strong sharp teeth, and its enormous eyes were surrounded by a ring of small overlapping bones for protection of the sensitive eyeball. Scientists think it may have done most of its hunting at night when the light was dim.

Since the ichthyosaurus could not get on land to lay its eggs like most other reptiles, the eggs were hatched inside its body and the young were born alive at sea.

Supplemental Materials:

ESP: Dinosaur Era, #S-21, 1979, p. 25, "Fish Lizard"

Discussion Questions:

1. When and where did the ichthyosaurs live?
2. How was it adapted to live in water?
3. What does "ichthyosaur" mean?
4. How did the ichthyosaur breathe?
5. How were young ichthyosaurs born?

<u>Name:</u>	Elasmosaurus
<u>Where It Was Found:</u>	Nearly all parts of the world
<u>What It Ate:</u>	Fish, squid-like animals and other marine creatures
<u>What It Looked Like:</u>	Up to 50 feet long snake-like neck with turtle-like body
<u>Interesting Facts:</u>	

The elasmosaurus appeared during the end of the Triassic Period. It was a plesiosaur whose name comes from two Greek words meaning "near lizard", but the plesiosaurs were far from lizard-like in appearance. They were your typical sea serpents.

The elasmosaurus had hip and shoulder girdles of plate-like bone. Its name is a combination of the Greek word for "thin plate" and "lizard". It had a broad, relatively short, turtle-like body, with a long, snake-like neck which might be half the length of its body. The skull was long and slender with jaws set with many sharp, backward curving teeth. It had big, paddle-shaped flippers which worked like oars, paddling backward and forward. The fairly short tail had no fin and was of little help in swimming. This slow-moving creature often flopped up onto land to lay its eggs.

Considering its large number of sharp, pointed teeth, the elasmosaurus oddly had the bird-like habit of swallowing its food whole. It had stomach stones called gastroliths, which aided digestion like gravel in birds' gizzards.

Supplemental Materials:

The Learning Works: Dinosaur Detective, 1979, pp. 14-15
"Elasmosaurus"

Discussion Questions:

1. Describe the elasmosaurus.
2. When and where did it live?
3. Why is it odd that the elasmosaurus swallowed its food whole?
4. How were baby elasmosaurus born?
5. What are gastroliths?

<u>Name:</u>	Pteranodon	
<u>Nickname:</u>	Winged Lizard	
<u>Where It Was Found:</u>	Europe, Asia, and North America	
<u>Where It Lived:</u>	Along the seashore near rocky cliffs	
<u>What It Ate:</u>	Fish and Insects	
<u>What It Looked Like:</u>	Body the size of a turkey or Canadian goose, wing span of up to 27 feet, and a long, bony crest on its skull.	

Interesting Facts:

The pteranodon was believed to be the largest pterosaur, (winged lizard) until the 1970's when the fossil of a Quetzalcoatlus, with a wingspan of 45 feet, was discovered in Texas. However, it is probably the best-known pterosaur. The pteranodon lived during the Cretaceous Period and was the last of the pterosaurs. At the end of its reign, birds began to appear and the pteranodon lost the rivalry.

The pteranodon was not a true dinosaur for many reasons. Scientists believe it may have had a furry body and have been somewhat warm-blooded. Like birds it had hollow bones, good vision, and a poor sense of smell. It may have roosted hanging upside down along the rocky cliffs where it laid its eggs. It may have even slept in the air. Unlike many of the dinosaurs, the pteranodon had a relatively large brain.

The three-foot beak of the pteranodon was pouched like a pelican's and it caught fish while swooping over water. It had no teeth, and its name literally means "winged without teeth". It had an enormous anvil-shaped head. Behind the head was a long bony crest which must have worked like the feathers of an arrow by keeping the beak pointed in the direction of flight. The crest may also have been used for a counter-balance for the large beak.

Wings of leathery skin stretched between the long front legs and the short back legs. The fourth finger ran along the front edge of the wing for support. The wing joint had three claws which were used to cling to things with. The pteranodon could not run. In fact, it could barely crawl. It lacked muscle power for flapping flight, so it depended on wind gusts to support its soaring and gliding movements through the air. The pteranodon was always in danger of drowning because of its inability to fly.

Supplemental Materials:

ESP: Dinosaur Era, 1979, pg. 20, "Flying Reptile"

Frank Shaffer: Dinosaurs, 1976, p. 7, "Flying Reptiles"

Discussion Questions:

1. When and where did the pteranodon live?
2. What is a pterosaur?
3. What did the pteranodon eat?
4. Describe a pteranodon.
5. What are some reasons why scientists do not regard the pteranodon as a true dinosaur?
6. What are two possible purposes of the pteranodon's crest?
7. What does the name "pteranodon" mean?
8. Why was the pteranodon always in danger of drowning.

THE END OF THE DINOSAURS

The disappearance of all the dinosaurs some 65 million years ago marked the end of the Age of Reptiles. Many explanations have been suggested as to why and how the dinosaurs disappeared. No one knows for sure why they became extinct, but here are some of the explanations:

1. Great changes took place in the earth. Mountains were pushed up and the once swampy land became hot and dry. There became fewer plants for the plant-eating dinosaurs to eat, thus they began to die out. Or, it is suggested new plants and trees appeared and plant-eating dinosaurs were unable to feed on them. With fewer plant-eating dinosaurs, the meat-eating dinosaurs were faced with a shortage of food and they also died out.
2. Part of the land that was dinosaur country became a lot colder. Dinosaurs were cold-blooded animals and didn't have a way of protecting themselves from the cold. They were too big to hibernate underground or travel to warmer climates. With no protection from the cold, they soon died out.
3. Some dinosaurs were egg-eating dinosaurs. With these dinosaurs around and also a growing number of smaller mammals to feed on dinosaur eggs, fewer dinosaurs were hatched. With fewer dinosaurs being hatched, they soon died out.
4. A giant star (supernova) exploded near earth and exposed the earth to radiation equal to billions of tons of hydrogen bombs. This radiation caused the dinosaurs to die out.
5. Cosmic rays from an explosion of a star far out in space brought about the end of the dinosaurs.

Any of these explanations or combinations may have attributed to the end of the dinosaurs. We can only guess as to what happened to the biggest and most terrible creatures that ever roamed this earth.

END OF THE DINOSAURS WORKSHEET

Read the following short selection and then choose the best answer to the following questions.

Scientists have advanced many reasons to explain why dinosaurs died out. The main cause was probably the rise of mountain ranges during the Cretaceous Period. When mountains formed, great seaways drained and vast swamp lands dried up. This caused many changes in climate and food supply. The dinosaurs could not adjust rapidly. The plant eaters could not eat the new plants so many died. Then those that ate the plant eaters did not have enough food. This long slow process took about 10 million to 20 million years.

1. The best name for this story is:
 - A. What Dinosaurs Ate
 - B. Living Long Ago
 - C. Why Dinosaurs Died Out
 - D. How Mountains Formed
2. Many dinosaurs didn't have food because:
 - A. other animals ate it
 - B. the swamp lands dried up
 - C. the seas became larger
 - D. all the food was soured
3. Meat-eating dinosaurs died because:
 - A. the plant eaters died
 - B. they ate plants
 - C. the animals were in the hills
 - D. they ate too much
4. This long process took about:
 - A. 5 million years
 - B. 1 to 2 million years
 - C. 25 million years
 - D. 10 to 20 million years
5. The word advanced means:
 - A. walked forward
 - B. suggested or proposed
 - C. moved ahead one space
 - D. know for sure

6. The information man has written about dinosaurs is:

- A. all true
- B. is just a story for children
- C. is assumed from things people have found
- D. mostly false

Answers to Worksheet

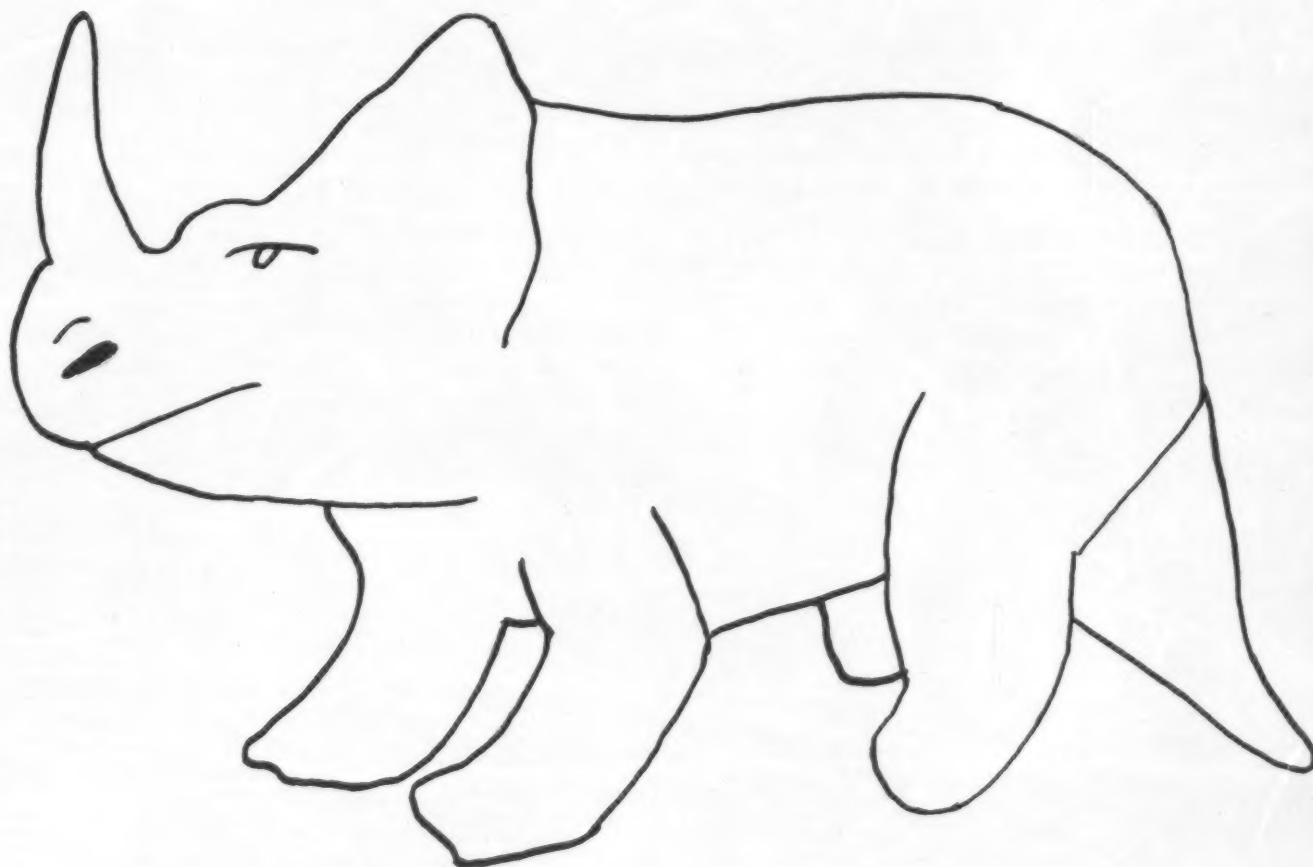
- 1. C
- 2. B
- 3. A
- 4. D
- 5. B
- 6. C

DINOSAUR ACTIVITIES

The following dinosaur activities can be worked on during or after the lessons. Many of the activities can be placed on a learning center to be worked on when time permits. All activities do not have to be completed every time you present this unit.

1. Make a dinosaur box. On numbered construction paper dinosaurs write questions that can be answered by using an encyclopedia or other reference books. Laminate for durability. Each child numbers their paper and then takes a dinosaur from the box and answers the question. Continue until all questions have been answered. Provide an answer key for self-checking, if desirable.

Dinosaur Pattern



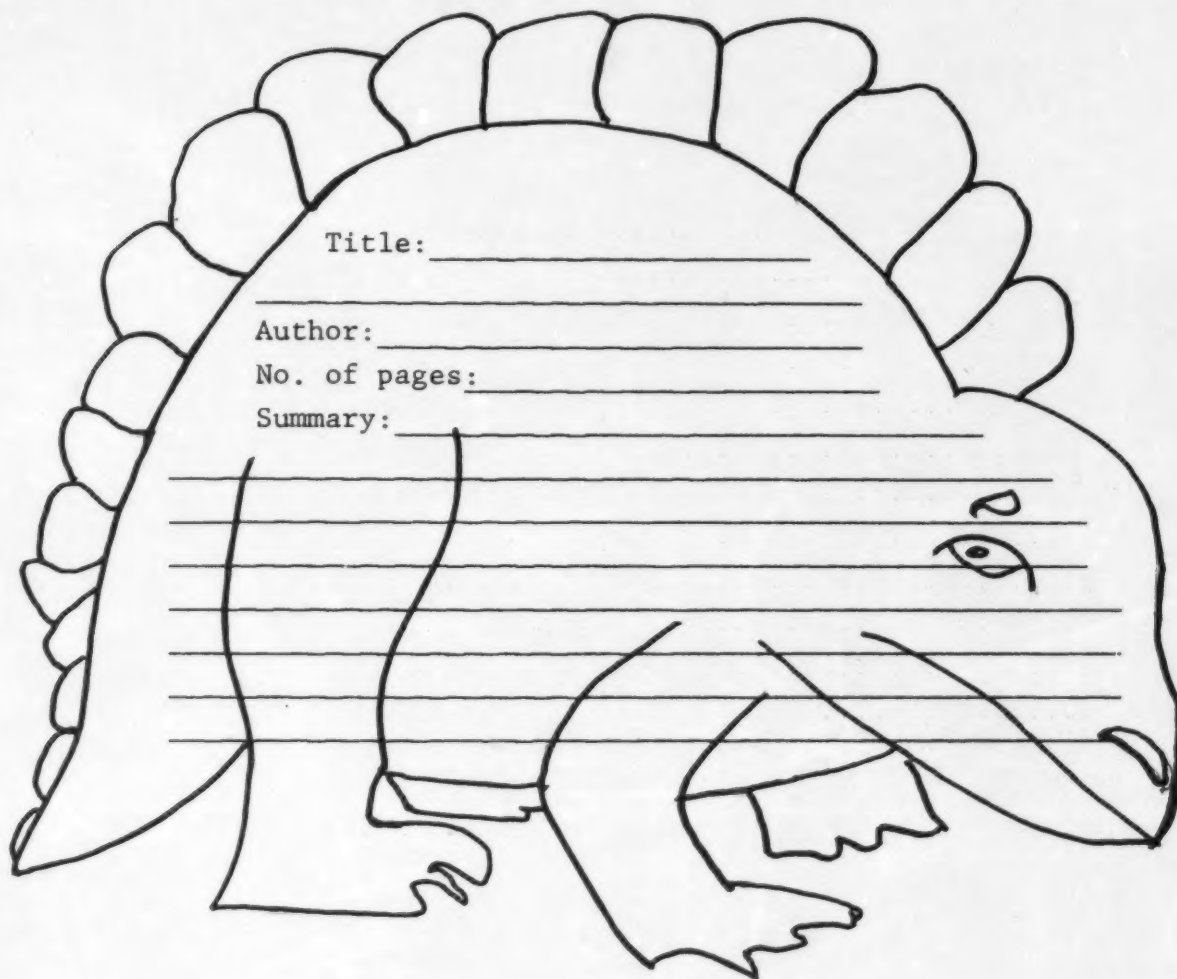
Put dinosaurs in a small box. On the outside of the box write the directions.

2. Let the children make up a dinosaur word search and/or a dinosaur crossword puzzle. Tell them to be careful to spell all dinosaur names correctly.
3. Play "Dinosaur Match". Dinosaur Match is a card game for 2 to 4 players. It is played exactly like "Go Fish". Five cards are passed out to each player with the rest being spread out in the center. The object is to make a "match" of 4 cards all exactly the same. Player with the most matches wins.

To make the cards, dinosaur stickers or seals can be used. Hallmark and Eureka both have seals that can be stuck onto cards (4 of each kind of dinosaur). Write "Dinosaur Match" on the backs of the cards, laminate, shuffle, and you have a matching game ready to play.

4. Pick one dinosaur and draw a picture of what that dinosaur looked like. Be sure to add surroundings (trees, water, etc.) to your picture.
5. As a class activity, see how many words each child can make from "Allosaurus" in 5 minutes. (Pick any dinosaur and write 3 or more letter words in an amount of time).
6. File folders. Using any dinosaur duplicating book, run off one copy of each page you intend to use. Place the copy inside a file folder and glue. Decorate the front of the folder. If you wish, place an answer key on the back of the folder. Laminate. Make a check-off sheet and let the children do the folders in any order.
7. Make up a Dinosaur Packet of worksheets, coloring sheets, creative writing activities, word searches or puzzles that you want your whole class to complete during your dinosaur unit. Assign a due date when you want the packet completed.
8. Read any book about dinosaurs. Make a book report over it, telling what the book was about and what you liked about it.
9. Read the book "The Enormous Egg" by Oliver Butterworth to your class. Before showing the class what hatches from the egg, let them draw a picture of what they think is in the egg and what it looks like.



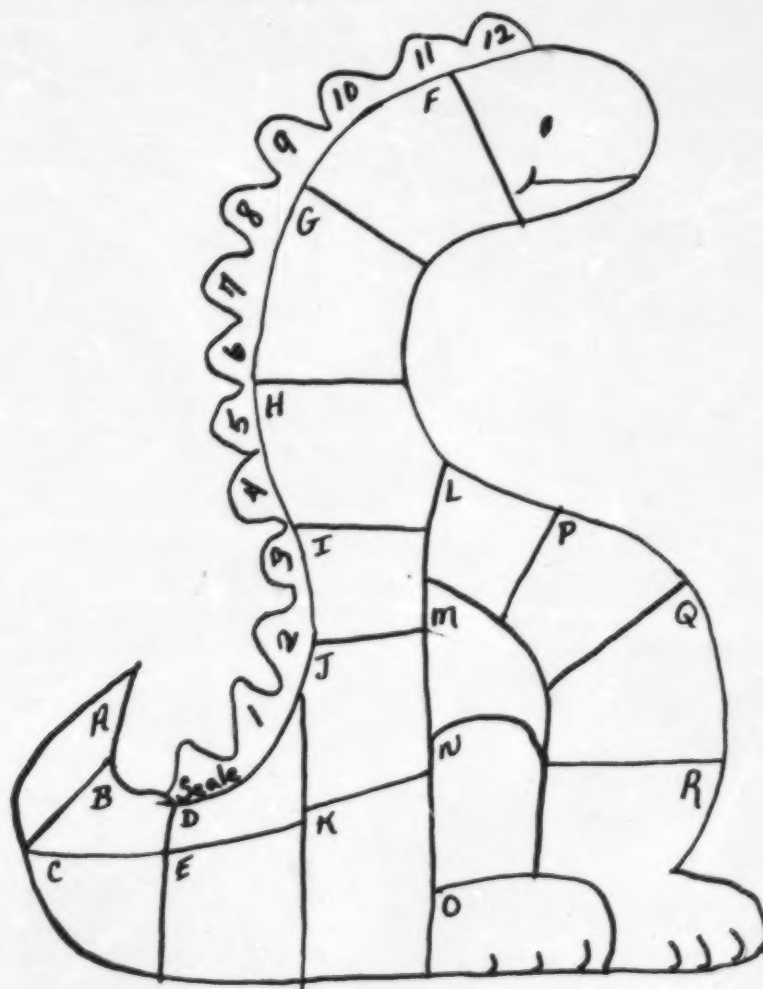


Cut out dinosaur. Place on bulletin board.

10. Dinosaur reports. Have each child write a report about dinosaurs. The reports can be about individual dinosaurs or about many dinosaurs. Let children copy over their final copies in Dinosaur Shape Books. Display.
11. Check to see what films and/or filmstrips are available to you about dinosaurs. Show the ones that are appropriate. Discuss or provide a short quiz over the film.
12. Set up a Dinosaur Study Center. The center can be constructed out of 3 corrugated cardboard panels or poster-board hinged together with scotch tape. (Each piece of cardboard 17" x 22") Place on a desk. On the cardboard panels you can place many dinosaur activities. Students may choose one of the activities to complete, or you may require that all activities be completed.

13. Mr. Multisaurs.

Mr. Multisaurs was an idea found in the Good Apple Newspaper, Fall 1978 issue. There are 18 math activities included on Mr. Multisaurs. A check off sheet can be provided so that each child knows what activities they have completed.



Mr. Multisaurs Activities:

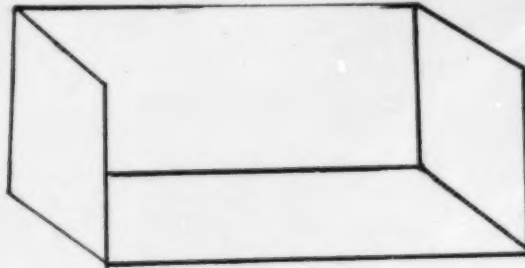
- A. Multiply each scale by the number 12.
- B. Skip along the scales counting by 3. Multiply each number by 3.
- C. Multiply each scale by the number 5, then add 3 to the product.

- D. Multiply each scale by the number 4, Then subtract 2 from the product.
- E. Multiply each scale by the number 6, then divide the product by 2.
- F. Multiply each scale by the number of toes the Multisaurus has.
- G. Multiply each scale by the amount of \$.50. Show your answer using a dollar sign and a decimal point.
- H. Multiply each scale by 312.
- I. Add ten to each scale, then multiply the new number by 56.
- J. Multiply each scale by the number 5, then circle each product that is a multiple of 3.
- K. Multiply each scale by the number itself.
Example: $1 \times 1 = \underline{\quad}$, $2 \times 2 = \underline{\quad}$ $3 \times 3 = \underline{\quad}$
- L. Multiply each scale by the number 671.
- M. Multiply each scale by the number of letters in Mr. Multisaurus' name.
- N. Decide how old you think the multisaurus is. Multiply each scale by his age.
- O. Mr. Multisaurus weighs 6,712 pounds. Multiply each scale by his weight.
- P. Add 16 to each scale, then multiply the new number by 17.
- Q. Multiply each scale by the number 12. Round off each product to the nearest 10.
- R. Mr. Multisaurus went on a diet and lost 132 pounds. Multiply his new weight by each scale.

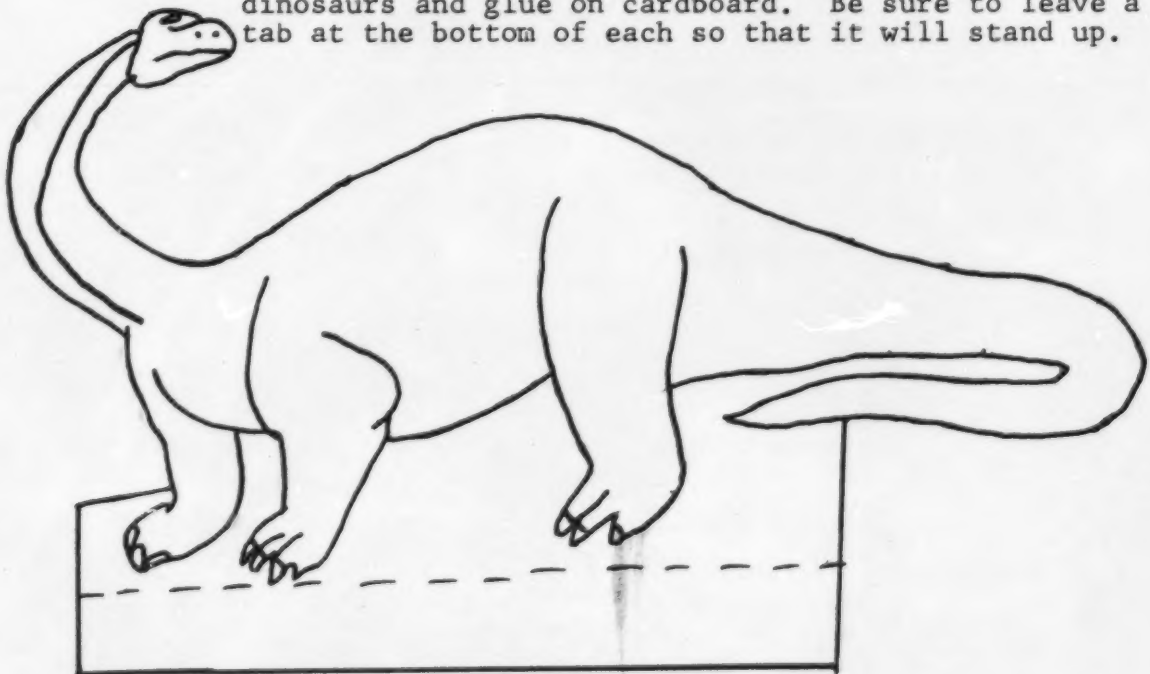
14. Make a Diorama

Directions:

1. Use the bottom of a shoe box.
2. Stand on one side to make stage.
3. Cut off one long side so stage has no top.



4. Color and cut out background scenes and glue them to the back and sides of the stage.
5. Use paint or crayons to finish sides and add bottom of stage.
6. Draw and color small pictures of the different dinosaurs and glue on cardboard. Be sure to leave a tab at the bottom of each so that it will stand up.



7. Add pictures of trees, rocks and a dinosaur nest full of eggs. Or use moss and other nature items to create a habitat.

15. Provide clay for your students. Ask each child to make a clay model of any dinosaur they chose. Display.
16. Make a dinosaur bulletin board. Blow up dinosaurs and let children paint them. Place the names of the dinosaurs underneath each. Paragraphs describing each dinosaur may also be placed next to the dinosaur.
17. Prepare a simple time line. Let students draw a small picture of a dinosaur they are interested in or doing a report about and place it on the time line.
18. Outline the shape of a dinosaur and put it into pieces shaped like "bones". Have the students put them together, but be sure to color one side so it's obvious which side is up!
19. Write names (or draw pictures of reptiles and other animals on cards. Pupils decide whether or not it's a reptile. Be sure to put the answers on the back.
20. True or False? Write facts that you want your students to know on cards. Mix them up with non-factual sentences. Some of them could even be silly. Students sort cards into true and false piles.

TRUE

FALSE

Dinosaur
means
terrible
lizard.

Man is a
reptile.

21. For a creative writing story, suggest that students write a story from the dinosaur's point of view.
22. Make fossils. Imprint leaves, footprints, or shells in clay. (You can also use plaster of paris. Put petroleum jelly on the object being imprinted and place in flat pan that has also been coated. Mix plaster of paris to consistency of heavy cream and pour quickly into pan.)

23. Play up students' interest by calling your groups. Brachiosaurs, Tryant Kings, etc. Have a dino party. Make Stegosaurs' favorite rock cookies (oatmeal) and drink Brontito punch (fruit).
24. "Name that Lizard!" Write descriptions of various dinosaurs (or draw pictures) on one side of the card. The student identifies the dinosaur and checks their answer on the back.
25. Create a mural. Write mural ideas on slips of paper; a student draws a slip to see what they are making for the mural. (If students are young, provide paper "scaled" to the size of your bulletin board area). Allow students to use construction paper, cardboard, cloth, balsa wood, or pipe cleaners. Some students might go to the woods for ferns, cattails and other plants resembling prehistoric plants.

Some ideas for the slips of paper might be: a) name of each dinosaur you wish to represent on your mural, b) cattails, c) palm trees, d) lacy-leaved bushes, e) ferns, f) spiky grasses, g) volcano drawing, h) rocks, and i) lake.



PATTERNS



BIBLIOGRAPHY

Activity Books

Golden Stamp Book of Animals of the Past. Golden Press, Western Publishing Co, Inc. Racine, Wis., 1968.

A Golden Exploring Earth Book Dinosaurs. Golden Press Western Publishing Co. Inc., Racine Wis., 1973.

An Educational Coloring Book of Dinosaurs. Spizzirri Publishing Co., 1981, P.O. Box 664, Medinah, Ill., 60157.

A Golden Learning Bee Book Dinosaurs.. Golden Press, Western Publishing Co. Inc., Racine, Wis., 1977.

Dinosaurs by Janice Carson, Frank Schaeffer Publications. Inc., 26616 Indian Peak Rd., Palos Verdes Peninsula, CA 90274, 1976.

Dinosaur Detective, A Learning Works Skill Builder of Reading Comprehension and Activities, written and illustrated by Beverly Armstrong, The Learning Works, P.O. Box 6187, Santa Barbara, CA 93111.

Dinosaur Puzzles, Barbara Seuling, Xerox Education Publications, Middletown, Connecticut, 1976.

Dinosaur Era. #S-21 ESP, 1979

Study Skills With Stacy Stegosaurus, Education Center, P.O. Box 9753, 1411 Mill St., Greensboro, NC 27408, 1979.

Fiction

Dinosaurs, My Darling. Edith Thatcher Hurd, Harper, 1978, 32 p.

Dinosaurs Housewarming Party, Norma Klein, Crown, 1974, 39 p.

Dinosaurs and Beasts of Yore. William Cole, Collins, 1979, 62 p. Poetry

Dinosaurs and All That Rubbish. Michael Foreman, Crowell, 1973, 32 p.

Jethro's Difficult Dinosaur. Arnold Sundgaard, Pantheon, 1977

Nate The Great and the Sticky Case. Marjorie Weinman Sharmat Coward, 1978

Mitchell Is Moving. Marjorie Weinman Sharmat MacMillan, 1978, 47 p.

The Double Disappearance of Walter Fozbek, Steve Sinn, Hastings House, 1980, 120 p.

Danger In Dinosaur Valley. Joan Lowery Nixon, Putnam, 1978, 47 p.

If the Dinosaurs Came Back. Bernard Most, Harcourt, 1977.

Sinclair Sophocles the Baby Dinosaur. Friederike Mayrocker, Random, 1974, 39 p.

The Tyrannosaurus Game. Steven Kroll, Holiday, 1976.

The Detective of London. Robert Kraus, Windmill-Dutton, 1977.

Dinosaur and the Dods. Annie DeCaprio, Grosset, 1965, Easy.

Dinosaur Dilemma, Lois Breitmeyer, Golden Gate, 1964, 158 p.

Dinosaur in Trouble, Sharon Gordon, Troll Associates, 1980, Easy, 29 p.

Dinosaur is Too Big. Elizabeth Bram, Morrow, 1977.

Dinosaur Joke Book. Same Berman, Grosset, 1969.

Dinosaur Mysteries, Mary Elting, Platt and Munk, 1980, 61 p.

Dinosaur Story. Joanna Cole, Morrow, 1974.

Dinosaur Time. Margaret Parish, Harper, 1974, Easy 30 p.

If I Rode a Dinosaur. Mirium Young, Lothrop, 1974.

The Foolish Dinosaur Fiasco, Scott Corbett, Little, 1978, 46 p.

In Grannies Garden. Sarah Harrison Holt, Rinehart & Winston, 1980, 32 p. Poetry

The Secret Dinosaur. Marilyn Hirsh, Holiday House, 1979, 40 p.

Non-Fiction

Dinosaurs, the Terrible Lizards. Rosalie Davidson, Golden Gate, 1969, 27 p.

Dinosaurs of the Earth. John Raymond, Child Guide, 1963, 93 p.

Dinosaurs of North America. Helen Sattler, Lothrop, 1981.

Dinosaurs: A Drawing Book. Michael Emberly, Little-Brown, 1980, 48 p.

Dinosaurs and Their World. Laurence Pringle, Harcourt, 1968, 63 p.

Dinosaurs and Other Prehistoric Animals. Alfred Leutscher, Grosset, 1971, 75 p.

Dinosaurs and More Dinosaurs. M. Jean Craig, Four Winds Press, 1965, 96 p.

Dinosaurs. Laurent Sauveur Sant, Grosset, 1971, 24 p.

Dinosaurs, Anthony Rao, Platt & Munk, 1979, 20 p.

Dinosaurs and Other Prehistoric Animals. Darlene Gies, Grosset, 1959, 105 p.

Dinosaurs. Alice Hitch Martin, Golden, 1973, 48 p.

Dinosaurs: A Book to Begin On. Eunice Holsaert, Holt, 1959.

Dinosaurs. Marie Halun Bloch, Coward-McCann, 1955.

The Dinosaur Book. Edwin H. Colbert, McGraw-Hill, 1951.

Album of Dinosaurs. Tom McGowen, Rand McNally & Co., 1972.

The Hot-Blooded Dinosaurs. Adrian J. Dismond, The Dial Press, 1976.

To Find A Dinosaur. Dorothy E. Shuttlesworth, Doubleday, 1973.

In the Days of the Dinosaurs. Roy Chapman Andres, Random House, 1959.

Before and After Dinosaurs. Lois and Louis Darling, William Morrow & Co., 1959.

Wonders of the Dinosaur World. William H. Matthews III, Dodd, Mead & Co., 1963.

All About Dinosaurs. Roy Chapman Andrews, E. M. Hale and Co, 1953.

Dinosaurs and More Dinosaurs. M. Jean Craig, Scholastic Book Services, 1982.

All About Dinosaurs. David Nash, Nutmeg Press, 1978, 24 p.

Dinosaur Trap. Anne Eve Bunting EMC, 1975, 37 p.

Discovering Dinosaurs. Glenn O. Blaugh, McGraw, 1960, 48 p.

The Story of Dinosaurs. Stanley B. Brown, Harvey House, 1958, 125 p.

The Crocodiles Still Wait. Carol Carrick, Houghton Mifflin, 1980, 32 p.

What Really Happened to the Dinosaurs. Daniel Cohen, Dutton, 1977, 70 p.

The Giant Dinosaurs: Ancient Reptiles That Ruled the Land. Troll Associates, 1980, 32 p.

Last of the Dinosaurs: The End of an Age. David Eldridge, Troll Associates, 1980, 32 p.

A Closer Look at Prehistoric Reptiles. Beverly Halstead, Gloucester, 1978, 30 p.

The Big Strawberry Book of Dinosaurs and Other Prehistoric Animals. Sidney Horenstein, Strawberry, 1978, 62 p.

Whatever Happened to the Dinosaurs? William Jaber, Messner, 1978, 160 p.

The Dinosaur Book. Edwin H. Colbert, McGraw for American Museum of Natural History, 1951, 156 p.

Dinosaur Days. David C. Knight, McGraw, 1977.

Dinosaur Hunt. George O. Whitaker, Harcourt, 1965, 94 p.

Dinosaurs. Kathryn Jackson, National Geographic Society, 1972, 31 p.

Little Dinosaurs and Early Birds, John Kaufmann, Crowell, 1977, 32 p.

Dinosaurs. David Lambert, Crown, 1978, 95 p.

Exploring the Age of Dinosaurs, David Lambert, Warwick, 1978.

Dinosaurs and Other Prehistoric Animals. Tom McGowen, Rand McNally, 1978, 110 p.

The Day of the Dinosaurs, John Man, Bison, 1978, 202 p.

The Warm Blooded Dinosaurs. Julian May, Holiday, 1978, 48 p.

The World of Dinosaurs. Richard Moody, Grosset, 1977, 46 p.

Dinosaurs and People: Fossils, Facts, and Fantasies. Lawrence Pringle, Harcourt, 1978.

Sea Monsters of Long Ago. Millicent E. Selsam, Four Winds, 1977.

Tyrannosaurus Rex. Millicent E. Selsam, Harper, 1978, 41 pg.

Brontosaurus, Angela Sheehan, Rourke, 1981.

Stegosaurus. Angela Sheehan, Rourke, 1981.

Triceratops. Angela Sheehan, Rourke, 1981.

Tyrannosaurus. Angela Sheehan, Rourke, 1981.

To Find A Dinosaur. Dorothy E. Shuttlesworth, Doubleday 1973, 113 p.

Dinosaurs, Nora Sullivan, Watts, 1976, 48 p.

Dinosaurs: The Terrible Lizards. Rosalie Davidson, Golden Gate, 1969, 27 p.

Dictionary of Dinosaurs. Joseph Rosenbboom, J. Messner, 1980, 96 p.

How to Make a Dinosaur. Sigmund Kalina, Lothrop, 1976, 64 p.

Death of A Dinosaur. Anne Eve Bunting, EMC, 1975, 37 p.

Escape From Tyrannosaurus. Anne Eve Bunting, EMC, 1978